Date: \_\_\_\_\_\_\_\_\_\_\_

NOTES: Magnetism From Electric Currents

Chapter \_\_\_\_\_, Section \_\_\_\_\_, pages \_\_\_\_\_ - \_\_\_\_\_

**I. The Discovery**

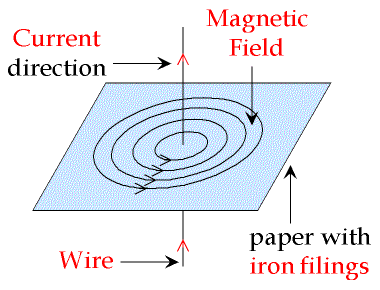
A. In the year \_\_\_\_\_\_\_\_\_, the Danish physicist \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ observed that:

B. When Oersted reversed the current direction in the conductor the compass needle…

C. From these observations, Oersted concluded that:

1.

2.

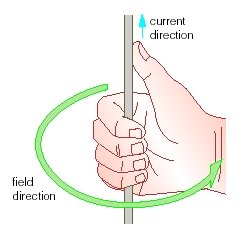
**II. Electromagnetism**

A. The magnetic field around a current-carrying wire

forms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ around the conductor.

B. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to find the

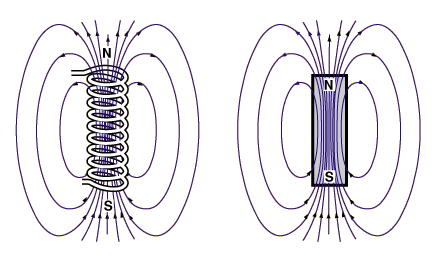
direction of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ produced by a current.



* *THUMB* - points in the direction of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* FINGERTIPS - point in the direction of the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C. Solenoids

* a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_\_\_\_ of wire with an electric current in it.
* it acts as a \_\_\_\_\_\_\_\_\_\_\_\_\_ when current passes through it (has a

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each loop \_\_\_\_\_\_\_\_\_ to the strength of the magnetic field of any neighboring loops.
* If the current changes direction, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

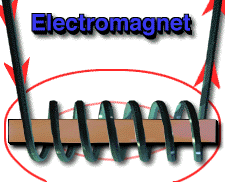
changes direction and the \_\_\_\_\_\_\_\_\_ flip. (use a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to test)

* *To* ***INCREASE*** *a solenoid’s magnetic field:*

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



\* This makes an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

D. ELECTROMAGNETS

* Much \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than solenoids themselves

because the magnetic field of the \_\_\_\_\_\_\_\_\_\_\_ causes the ferromagnetic core to

become a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the core line up and

create a larger magnetic field.

* Electromagnets may be turned \_\_\_\_\_\_\_\_\_\_ depending on if \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is flowing.

**III. ELECTROMAGNETIC DEVICES**

A. **Galvonameter/Ammeter** –

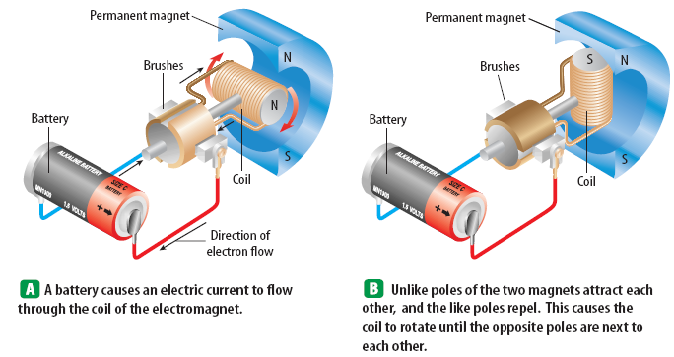
* Have an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (attached to a pivoting needle) that

interacts with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ magnet to measure

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* The stronger the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through the coils, the greater

the attraction/repulsion with the permanent magnet.



C. E \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ M \_\_\_\_\_\_\_\_\_\_\_\_\_

- converts (changes) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy into\_\_\_\_\_\_\_\_\_\_\_\_\_ energy (motion)

\*Using the picture to the right (and your own words), explain how to motor spins:

1.

2.

3.

4.

5.